May 20, 1952 J. S. DE GROFF 2,597,573

SPRAYING APPARATUS

Filed Oct. 3, 1949 2 SHEETS—SHEET 1

Fig. 1.

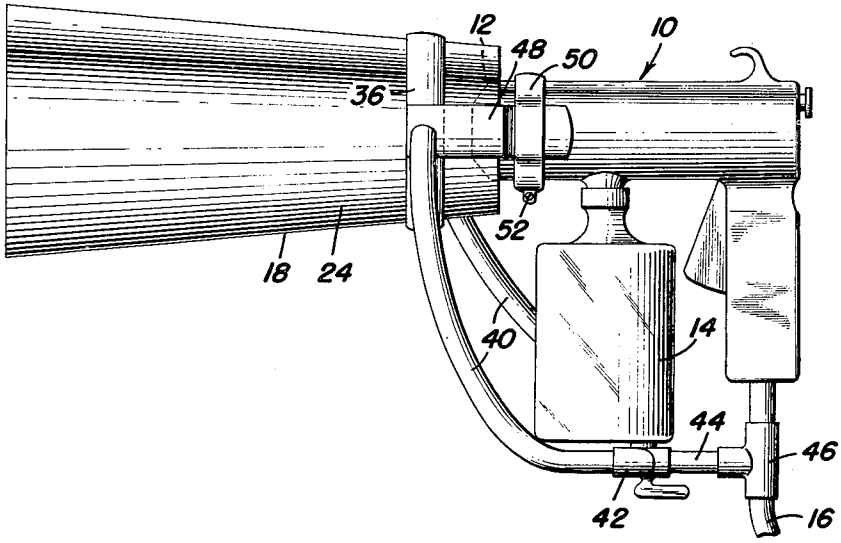

Fig. 2.

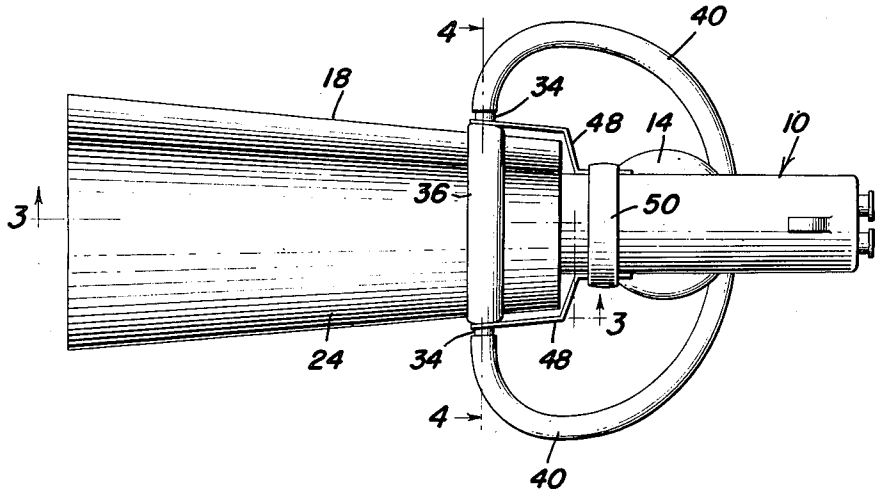

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Fig. 3.

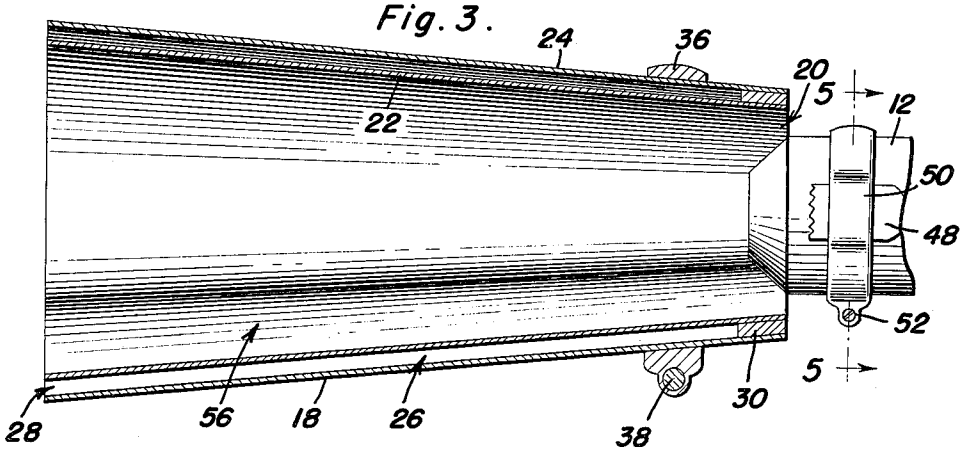


Fig. 4.

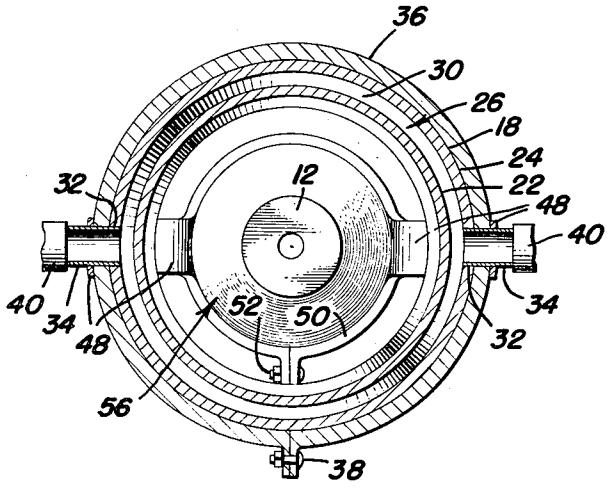
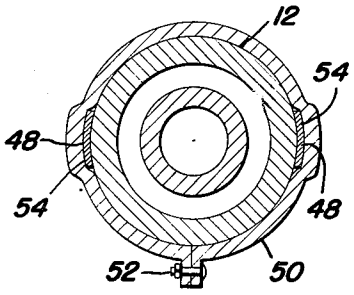


Fig. 5.



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UNITED STATES PATENT OFFICE

2,597,573

SPRAYING APPARATUS

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Application October 3, 1949, Serial No. 119,255

1 Claim. (Cl. 299—140)

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This invention relates to new and useful improvements in structural refinements in spraying apparatus, particularly, paint spraying apparatus, and the principal object of the invention is to minimize if not altogether prevent lateral dispersion of spray after leaving the spraying nozzle, so that the operator is not subjected to harmful effects of the dispersed paint particles and so that the spraying operation may be efficiently and economically effected without undue loss.

This object is achieved by the provision of means forwardly of the spraying nozzle for projecting an enclosing wall, so to speak, of compressed air around the paint spray emanating from the nozzle, the purpose of the "enclosing wall of compressed air" being to prevent or substantially minimize lateral dispersion of paint particles.

One of the primary features of the invention, therefore, resides in the structure of the means employed for projecting the wall of compressed air, while another feature lies in the provision of means for attaching the first mentioned means to the nozzle of a spray gun, or the like.

Some of the advantages of the invention reside in its simplicity of construction, in its convenient and efficient operation, and in its adaptability to economical manufacture.

With the above more important objects and features in view and such other objects and features as may be come apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a side elevational view of the invention applied to a spraying gun;

Figure 2 is a top plan view thereof;

Figure 3 is a longitudinal cross sectional view, taken substantially in the plane of the line 3—3 in Figure 2;

Figure 4 is a cross sectional view, taken substantially in the plane of the line 4—4 in Figure 2; and,

Figure 5 is a cross sectional view, taken substantially in the plane of the line 5—5 in Figure 3.

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the general reference character 10 designates a conventional spray gun having a nozzle 12, a paint container 14 and a compressed air supply hose 16, as will be clearly apparent.

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The invention resides in the provision of a substantially frusto-conical, open ended shell 18 which is disposed forwardly of the nozzle 12 and in axial alignment therewith, the minor or smaller end of the shell being positioned immediately adjacent the nozzle and surrounding the same in spaced relation, as indicated at 20 in Figure 3.

The attachment of the shell to the spray gun will be hereinafter described, and it is to be noted that the shell itself actually consists of spaced, co-axial inner and outer walls 22, 24 respectively, which afford therebetween an air chamber 26 having an annular outlet or mouth 28 disposed at the major or forward end of the shell, as will be clearly apparent from Figure 3.

An annular gasket 30, or the like, is provided between the walls 22, 24 at the minor end of the shell, while an intermediate portion of the outer wall 24 is formed at diametrically opposite sides thereof with a pair of openings 32 to accommodate tubular adaptors 34 which, in turn, project outwardly through suitable openings provided in an annular clamp 36 positioned on the outer wall of the shell.

The clamp 36 is equipped with a suitable clamping screw 38 whereby it is rigidly retained in position on the shell, while the adaptors 34, communicating with the air chamber 26, are connected by suitable flexible tubes 40 to a control valve 42 which, in turn, is connected by a nipple 44 and a T 46 to the compressed air hose or line 16.

The mounting of the shell 18 on the gun 10 is effected by the provision of a pair of straps 48 which are secured at one end to the adaptor 34 while their remaining end portions are inwardly offset so that they engage the outer surface of the nozzle 12 and are secured thereto by an annular clamp 50 provided with a clamping screw 52. It should be understood that the straps 48 are bendable so that they may accommodate nozzles of different diameters, and if desired, the clamp 50 may be provided in diametrically opposite portions thereof with suitable recesses 54 to accommodate the free end portions of the straps, as illustrated in Figure 5.

When the invention is placed in use, the spray gun is actuated in the conventional manner and by simply opening the valve 42, compressed air will be delivered through the tubes 40 and adaptors 34 into the air chamber 26, from which it will be discharged under considerable pressure through the outlet mouth 28 so that it provides a frusto-conical enclosing wall of compressed air

around the paint spray emanating from the nozzle and traveling outwardly through the passage 56 defined by the inner wall 22 of the shell 18. In this manner, the sprayed particles of paint will be prevented from dispersing laterally by the enclosing wall of compressed air, and the advantages of the invention thus become clearly apparent.

Although the invention has been described and illustrated as being attached to the spray gun by the straps 48 and clamp 50, it is obvious that any other suitable attaching means may, of course, be employed.

It is believed that the use of the invention will be readily understood from the foregoing disclosure and accordingly, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown and described, the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

In apparatus of the character described, a paint sprayer, a nozzle therefor, an elongated frusto-conical open-ended shell disposed forwardly of said nozzle and in axial alignment therewith, the smaller end of said shell being positioned adjacent said nozzle and surrounding the same in spaced relationship, said frusto-conical shell comprising a pair of spaced walls forming an annular air chamber therebetween which is open at its outer end, means comprising a plurality of ports communicating with said air chamber and arranged circumferentially about said shell for admitting air under pressure thereto, tubular adapters projecting laterally from the shell and communicating with said ports, conduit means communicating with said adapters and a source of compressed air for delivering air under pressure into said chamber for discharge through said open-end portion thereof, and means for adjustably fastening said shell to said paint sprayer nozzle, said last mentioned means comprising straps mounted on said adapters and extending rearwardly therefrom, and a clamp securing rear portions of said straps to said nozzle.

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